



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,342	06/09/2005	Tadashi Fukuhara	SNK-001-US	1639

21254 7590 02/14/2008  
MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC  
8321 OLD COURTHOUSE ROAD  
SUITE 200  
VIENNA, VA 22182-3817

EXAMINER
----------

KENNY, DANIEL J

ART UNIT	PAPER NUMBER
----------	--------------

3633

MAIL DATE	DELIVERY MODE
-----------	---------------

02/14/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/532,342	<b>Applicant(s)</b> FUKUHARA ET AL.	
	<b>Examiner</b> DANIEL KENNY	<b>Art Unit</b> 3633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 6-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, and 14-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 1 is objected to because “on an other end” apparently means another end of the main sheet, but this is not sufficiently clear, and “a fastening part that is formed in a substantially flat shape from the outside end of said the overlapped part, are disposed side by side, in that a portion of the main...” is grammatically incorrect. Appropriate correction is required.

Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 already recites the structural relationship of the parts claimed in claim 3. Claim 3 is further objected to because “the engaging part is formed on the overlapping part in a position corresponding to said overlapped part” is not fully understood.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 recites the limitation "its bend ", and “inside corners of the overlapped parts”, and “engaged parts”, plural. There is insufficient antecedent basis for these limitations in the claim.

Claim 4 recites the limitations "the end part of said construction sheet", and "said resin welding member". There is insufficient antecedent basis for these limitations in the claim.

Claim 19 recites the limitation "the underlying part". There is insufficient antecedent basis for this limitation in the claim.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the overlapped part and the mainsheet.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph. The claim is generally narrative and indefinite, failing to conform with current U.S. practice. It appears to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the overlapped part can be fused with the resin film located at the overlapped part because the film is already an integral layer of the sheet. In addition, the remaining portion of the claim, "and a synthetic...", only makes the claim more unclear. Further, it is not understood how the overlapped part can be filled with the resin welding member. Perhaps a portion of the overlapping

member can be filled due to the void created by the leg, T. For examination purposes, the resin welding member filling the overlapped part, is recognized.

Claim 25 is rejected under 35 U.S.C. 112, second paragraph, because it is unclear what “is [singular] recessed inside the overlapped part”; the engaged or engaging part? For examination, the plural, both parts is assumed. In addition, it is rejected because it is unclear whether “an engaging part” of line 8 is the same part as the “an engaging part” of line 3? For examination, it is assumed they are the same part.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, because by “suspension element”, Applicant appears to be claiming the clip, 6', of Fig. 6B. Since claim 26 depends from claim 25, Claim 25 clearly being drawn to the assembly of Fig. 4, it is not understood how the assembly of Fig. 4 can be attached to the roof with a clip (since the panel is attached via a tab that is integral to the panel), especially since no Fig. illustrating such has been submitted. For examination purposes, it is assumed that Applicant is claiming the embodiment of a standing seam roof represent by Fig. 4, but capable of being clip-attached rather than attached through a flange on the edge of the panel.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, and 5 - are rejected under 35 U.S.C. 103(a) as being unpatentable over Cahoon (5,535,567) in view of Sanko (JP 2000-314211).

Cahoon discloses a metal roof comprising:

**Claim 1** – a metal roof cover panel wherein the panel includes:

a mainsheet;

an overlapped part (26) extending approximately along a longitudinally edge of the mainsheet, the overlapped part folded back into an almost hairpin-like cross-sectional shape with an engaged part (ed) formed therein;

an engaging part (eg) formed on the opposite longitudinal edge of the main sheet, the engaging part engaging and fastened with the engaged part;

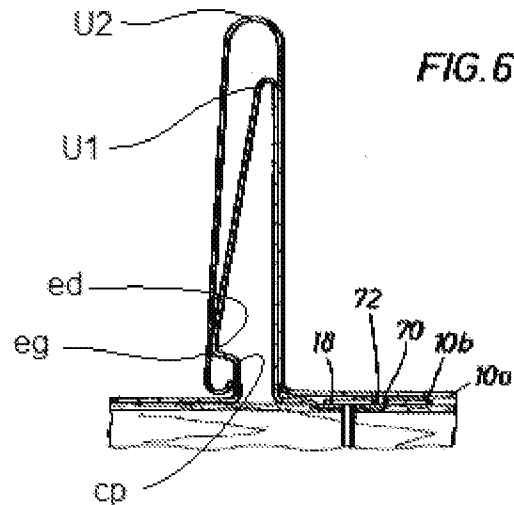
an overlapping part (24) overlapping the overlapped part;

and a substantially flat fastening part (10b) adjacent the overlapped part, a portion of the main sheet near the overlapping part being located on the fastening part of an adjacent construction sheet, and the overlapping part overlapped with the overlapped part.

Cahoon does not disclose that the metal sheet is covered by a layer of resin film, the film in the vicinity of the engaging/engaged parts generally being fused together.

Sanko discloses a metal roof having a metal sheet (A1) covered by a layer of resin film (A2), the film in the vicinity of the engaging/engaged parts generally being fused together (see Figs. 1B, 7C, and para. 6).

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the familiar standing seam structure taught by Cahoon with the film layer and panel seam fusion of Sanko because it does no more than yield predictable results of providing a stronger, more watertight seam.



Annotated Fig. 5 (U.S. Pat. 5,535,567)

**Claim 2** - An edge of the fastening part is bent upward such that the edge of the outer end of the fastening part is parallel with an unbent portion of the fastening part (see Fig. 6).

The fastening part edge is not expressly disclosed as bent backward. However, such a backward bend is considered a matter of design choice, as both edges serve the same function of providing an alternate surface (apart from the fastener head) onto which the underside of the panel is disposed.

**Claim 3** – The engaged part is formed on the overlapped part, the engaging part is formed on the overlapping part, and the engaging part is engaged with the engaged part (see annotated Fig. 5).

**Claim 5** – The resin film is comprised of a thermoplastic resin (para. 8).

**Claim 4** - is rejected under 35 U.S.C. 103(a) as being unpatentable over Cahoon in view of Sanko and in further view of McCoy (2,038,437).

Cahoon in view of Sanko does not expressly disclose a trough resin welded to the end of the panel.

McCoy discloses a trough (11) secured to the end of the panel.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the resin welded metal roof taught by Cahoon in view of Sanko with the panel-attached trough of McCoy because it does no more than yield predictable results of directing water while sealing the panel/trough joint.

Claims 14-17, and 24 - are rejected under 35 U.S.C. 103(a) as being unpatentable over Cahoon in view of Sanko.

Cahoon discloses a construction sheet, comprising:

**Claims 14 and 24** - a thin metal sheet comprising:

a flat main sheet;

an overlapped part rising above the fiat main sheet and connected to a first side end of the flat main sheet, comprising an engaged part that engages with an engaging part of an adjacent construction sheet;



a fastening part connected to, and continuously from, the overlapped part, the fastening part comprising:

a surface parallel to the flat main sheet; and

a fastening fitting (18) to fasten the construction sheet to an underlying part;

and an overlapping part rising above the fiat main sheet and connected to a second side end of the fiat main sheet, comprising an engaging part that engages with an engaged part of an adjacent construction sheet, wherein the overlapping part overlaps an overlapped part of an adjacent construction sheet and the overlapped part is overlapped by an overlapping part of an adjacent construction sheet.

Cahoon does not disclose that the metal sheet is covered by a layer of resin film, the film in the vicinity of the engaging/engaged parts generally being fused together.

Sanko discloses a metal roof having a metal sheet (A1) covered by a layer of resin film (A2), the film in the vicinity of the engaging/engaged parts generally being fused together (see Figs. 1B, 7C, and para. 6).

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the familiar standing seam structure taught by Cahoon with the film layer and panel seam fusion of Sanko because it does no more than yield predictable results of providing a stronger, more watertight seam.

**Claim 15** - The overlapped part further comprises a hairpin-like cross-sectional shape, and the overlapping part comprises an arch-form cross-sectional shape.

**Claim 16** - The overlapped part further comprises a corner part (cp) inside the hairpin-like cross-sectional shape, wherein the overlapped part and an overlapping part of an adjacent construction sheet are fused by resin welding, resin welding seams of an architectural standing seam roof shown by Sanko to be old in the art.

**Claim 17** – Sanko discloses (at Fig. 1B, Fig. 7C, and para 6) using a resin welding member to seal the seam (a standing seam, in the case of Fig. 7C) of a metal roof. Sanko does not disclose filling an overlapped part with the resin welding member because the structure of the Sanko seams does not create a void that would allow resin welding member to be deposited therein. Cahoon does have such a void-creating overlapping part.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the familiar a void-creating overlapping part standing seam structure taught by Cahoon with the resin welding member disposition of Sanko, thus filling the overlapping part because it does no more than yield predictable results of providing a stronger, more watertight seam.

Claims 18-23 - are rejected under 35 U.S.C. 103(a) as being unpatentable over Cahoon in view of Sanko and in further view of McCoy.

**Claim 18** - Cahoon in view of Sanko does not expressly disclose a trough structure mounted on a bottom end of the construction sheet, comprising:

a trough main body comprising a square cross-sectional shape;

an attachment part comprising an upper end of a side part of the trough main body such that the attachment part is horizontally bent toward the bottom end of the construction sheet; and

a hanging part comprising an area between the attachment part and the bottom end of the construction sheet.

McCoy disclose a trough structure (11) mounted on a bottom end of a construction sheet (5), comprising:

a trough main body comprising a round cross-sectional (round versus square is a design choice);

an attachment part (12) comprising an upper end of a side part of the trough main body such that the attachment part is horizontally bent toward the bottom end of the construction sheet; and

a hanging part (part adjacent horizontally installed nail) comprising an area between the attachment part and the bottom end of the construction sheet.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the resin welded metal roof taught by Cahoon in view of Sanko with the trough of McCoy because it does no more than yield predictable results of re-directing water.

**Claim 19** – The attachment part being underlying (underneath the construction sheet), or overlying (over the construction sheet) is a matter of design choice).

**Claim 20** – It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the resin welded metal roof taught by Cahoon in view of Sanko with the trough of McCoy to fuse the resin welding member by resin welding to the underlying synthetic resin film because such does no more than yield predictable results of sealing the sheet/trough junction.

**Claim 21** – It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the resin welded metal roof taught by Cahoon in view of Sanko with the trough of McCoy to fuse together the parts because such does no more than yield predictable results of sealing the assembly.

**Claim 22** – Examiner notes that gutters supported from below are old in the art, and that using such would have been obvious to one of ordinary skill in the art at the time the present invention was made to further support the gutter.

**Claim 23** - It would have been obvious to one of ordinary skill in the art at the time the present invention was made to continuously form the trough structure so that the trough main body and the underlying part constitute an integral unit, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *In re Dulberg*, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961)

Claims 25-28 - are rejected under 35 U.S.C. 103(a) as being unpatentable over Cahoon in view of Sanko and Greenberg (5,247,772).

The overlapped part taught by Cahoon further comprises:

**Claim 25-** an engaged part (ed) that engages with an engaging part (eg) of an adjacent construction sheet and both parts are recessed inside the overlapped part; and  
an inverted U-type shape (U1),  
wherein the overlapping part further comprises:  
an inverted U-type shape (U2); and  
an engaging part that engages with an engaged part of an adjacent construction sheet.

Cahoon does not expressly disclose the engaged and engaging parts recessed toward an inside of the overlapping part into a generally V shape.

Greenberg discloses a seam of a standing seam roof wherein the engaged and engaging parts recessed toward an inside of the overlapping part into a generally V shape (see Fig. 5, generally at 50).

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the seam taught by Cahoon with the inwardly recessed engaging/engaged parts of Greenberg because it does no more than yield predictable results of further securing the seam.

**Claim 26 –** The sheet of Cahoon in view of Sanko and Greenberg being capable of attachment to the substrate via a separate clip (see Sanko, Fig. 7C).

**Claims 27** - The overlapped part further comprises a corner part (cp) inside the inverted U-type shape, and the overlapped part and an overlapping part of an adjacent construction sheet are fused by resin welding, resin welding seams of an architectural standing seam roof shown by Sanko to be old in the art.

**Claim 28** – Sanko discloses (at Fig. 1B, Fig. 7C, and para 6) using a resin welding member to seal the seam (a standing seam, in the case of Fig. 7C) of a metal roof. Sanko does not disclose filling an overlapped part with the resin welding member because the structure of the Sanko seams does not create a void that would allow resin welding member to be deposited therein. Cahoon does have such a void-creating overlapping part.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the familiar a void-creating overlapping part standing seam structure taught by Cahoon with the resin welding member disposition of Sanko, thus filling the overlapping part because it does no more than yield predictable results of providing a stronger, more watertight seam.

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **DANIEL KENNY** whose telephone number is (571)272-9951. The examiner can normally be reached on Monday thru Friday, 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Chilcot can be reached on (571) 272-6777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3633

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeanette E Chapman/  
Primary Examiner, Art Unit 3633

/D. K./  
Examiner, Art Unit 3633

2/13/2008